

Building educational partnerships through space education Ashton Community Science College

Leading space education programme

Key actions

The appointment of a physics outreach teacher by the University of Central Lancashire, coinciding with the reopening of the University's Observatory at Alston, allowed for a cross Preston "space" project to be developed. The experience of other "space" schools and the inclusion of water and compressed air rocket design and build projects in the school's year 8 Space Module, led to the idea of a Preston schools' solid fuel rocket, design and build project. The culmination of this would be a multi-school rocket launch at a Discover Science Day at the University's Sports Arena in July.

Ashton Community Science College already works closely with the University on various projects. As Ashton was involved in the SSATs Leading Space Education program it was decided that a space related event should take place and the Preston Flyers Rocket Launch Competition was born. The University was keen to put on a Discover Science Day for Key Stage 3 students the following summer and so it was agreed that the final of the rocket launch competition would take place at this event.

Finding a suitable venue for a rocket launch can be a problem as rockets can fly some distance. Fortunately the University has a large sporting venue and once the authorities agreed, a date the Discovery Day could be planned.

It became apparent fairly early on that the funding allocated to this project would be insufficient and as the School was collaborating with a University we were able to apply for, and gain, a Royal Society grant. This enabled us to offer transport and supply cover to all participating schools, overcoming one of the major hurdles to such partnership events.

Four partner schools were invited to join Ashton in the Preston Flyers Rocket Launch Competition. Each school would have two teams, each consisting of a maximum of five students. One team would be from year 7 and the other from year 9.

The project was "launched" at the University's Alston Observatory on the outskirts of Preston. The newly appointed physics outreach teacher gave a master class in "How rockets work!" and then all staff and students watched a presentation in the brand new planetarium. After this each school was given four identical rocket kits and the instructions on how to construct them. The launching equipment was demonstrated and health and safety issues were discussed.

These model rockets each have a solid fuel motor that burns and so propels them upwards for a certain number of seconds, depending on the size of the motor. As the motor burns out it forces the nose cone out of the rocket deploying a streamer or parachute to help control the descent.

The winning team would be that team whose rocket stayed airborne for longest. As the means of propulsion was identical for each, the design of parachute would be the important factor. The time to descend would determine the winners.

Each school worked independently on their constructions. At Ashton the rockets were painted in the school colours and many lunchtimes were spent testing parachutes.

30 students from each school were invited to the Discovery Day at Preston Sports Arena on the 16 July, including the teams. Other space related activities on show were a session on Solar Flares, led by the Astronomy School at the University who are world experts in this field and an inflatable planetarium which was the highlight of the day.

The rocket launch teams all arrived excitedly with their beautifully decorated and carefully constructed rockets, each with a secret means of slowing descent hidden in the nose of their model.

As is the case in this country, however, the weather cannot be relied upon and the 16 July was one of the wettest most blustery days of the summer. The experts at the University rightly decided that rockets could not be launched in such conditions and so the hard work and dedication of the students, and staff on this project will not be rewarded until the new launch date in October! The trophies remain in the cabinet at Ashton and will be presented next term on what is hoped will be a fine day in the autumn.

The project involved five Preston Secondary Schools. Two teams were invited from each school, one from year 7 and one from year 9. Teams had a maximum of five members each. Students expressed great enthusiasm for the planetarium at the Observatory. They were all very keen to be invited to participate in future events that are to be offered.

Students were enthused with the presentation by the physics outreach teacher and asked many questions, some about the presentation but much more about her studies and life which involves much travel to foreign parts to take part in conferences on Space and Astronomy. This has raised the aspirations of several students and opened their eyes to where science and physics in particular can take them. Despite the poor weather on the Discovery Day students found the work on Solar Flares interesting and the inflatable planetarium brilliant, as did the staff. Ashton is booking the planetarium for the school in science Week next year to use with our partner primary schools.

Impact on lead and partners schools

All partner schools have worked in partnership with the University and the physics outreach teacher. The links made are permanent and not just for this project. The University has designed space related education sessions at the observatory and the schools involved have attended these.

Teachers now have a high quality resource which gives them more confidence in an area of science many are not familiar with. Visits to the observatory are becoming part of the curriculum, certainly at Ashton and I am sure at other partner schools.

The observatory and the University have become much more accessible resources for schools in Preston and the use of these facilities will increase and improve in future years. The University has held CPD sessions teaching teachers how to use telescopes and has hosted star gazing evenings for students and parents.

Impact on specialism

The numerous "rocket launch activities" have raised the profile of science within the school and have helped cement the science specialism for parents of Y7 students. The number of secondary schools involved in joint projects has increased and the relationships of these schools with the local University has developed as a result of this project. The curriculum enrichment offered by the University's Observatory, developed in collaboration with students from Ashton is now offered across all schools in Preston.

Top tips

Some schools found it difficult to release teachers and students to attend events even though supply and transport were paid for. Need to give as much notice as possible but even this is not always enough. Some schools are not as keen on enrichment as others and it is important to talk to those involved face to face. The current trend of email is impersonal and too easy to ignore.

If other schools are involved on projects don't assume they are as motivated to complete them as you are! Regular contact and encouragement is required. A start up event and a later feedback event during the project to iron out issues worked well.

The British weather can intervene. Try to have reserve dates for launches; this is very difficult in the summer term as so much enrichment is going on. Fix the dates as early in the year as possible, try to get them in the schools' calendar.

The future

The Science Discovery Day and the Preston Flyers Rocket Launch will be held on an annual basis. Trophies have been bought, one for the year 7 project and one for year 9. The intention is to widen the number of schools involved and perhaps build bigger more complex rockets in the future.

The University and more specifically from this project the Observatory has become a teaching resource for all schools in Preston. Other collaborative projects are in the pipeline and it is intended that the University becomes a community resource, not just for science but for all areas of the curriculum.

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Images from the programme

